

REQUEST FOR PROPOSAL

In-Depth Cable-Stayed Bridge Inspection and Evaluation

for

SIXTH STREET VIADUCT CABLE-STAYED BRIDGES

ISSUED BY:
CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS
INFRASTRUCTURE SERVICES DIVISION



Proposals to be submitted:

No Later Than 4:00pm CDT

June 14, 2012

LATE SUBMITTALS WILL BE REJECTED

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1. Introduction and Background

The City of Milwaukee is requesting proposals to perform the 10-year in depth inspection of the 6th Street Cable-Stayed Bridges main span and back span over the Menomonee River.

2. Scope of Services

The City of Milwaukee is requesting a proposal for services as defined herein for the full in-depth inspection and evaluation of the cable-stayed main span and back span of the Sixth Street Bridge, B-40-413A and B-40-414C in Milwaukee, WI, which opened to traffic in 2002, see Appendix A for location map. The structure consists of twin biaxially post-tensioned flat slab cable stayed bridges with main spans of 195-feet and biaxially post-tensioned flat slab concrete approach spans. The cable arrays connect the roadway structure to twin outer pylons. Each array has 12 stay cables per side located a constant 33-feet from the centerline of the roadway. The purpose of this evaluation is to evaluate the overall performance of the structure and identify any potential problems, damage or underperformance of any of the structural elements, which require repair or maintenance and to prepare a cost estimate for rehabilitation for each item included in this proposal. The consultant shall perform a review of the design plans, record drawings, constructions specifications, 2002 6th Street Viaduct Inspection Manual, 2002 baseline survey data, bridge inspection report, maintenance records, and professional service contract.

A. Anchorages

All stay cable anchorages grease/wax caps, bearing plates, and surrounding areas (both lower and upper) shall be inspected from the exterior for signs of water intrusion, corrosion or other deterioration. Eight (8) anchorages will be chosen based on the exterior inspection observations, for grease/wax cap removal, and inspection of strand tails, wedges, wedge plates, and seals and gaskets, for signs of water intrusion, corrosion, and other deterioration. Inspection procedures shall be proposed that create no damage to the structure. Special access techniques for both lower and upper anchorages may be required, as will the services of a qualified support services contractor. Anchor caps, gaskets, and grease shall be properly replaced upon completion of inspection activities, as required.

B. Pylon

The concrete pylons exhibit concrete cracking. Cracking visible to the unaided eye shall be inspected and mapped on the entire pylon shaft and anchor box. Cracking to be monitored during the course of the inspection for changes in width to access the nature, significance, and need for repair of the cracking, and the mapping shall be detailed enough to allow for future monitoring. Potential causes of cracking shall be evaluated.

C. Cable Length Visual Inspection

Arm's length visual inspection of the full length of all stay cables shall be conducted to detect and/or examine irregularities including excessive sag, kinks, misalignment, impact damage, staining or other deterioration. Additionally, any previously repaired areas must be closely inspected. The cable free lengths shall be evaluated to assess the condition of the extruded HDPE Pipe for surface defects, embrittlement, and cracks, to assess its function as corrosion protection element and as a rain-wind oscillation preventative measure for the main tension element contained within the cable sheathing. Inspect guide and transition pipes to access wear points, sealant integrity, and moisture entry points.

D. Stay Guide Pipes

The guide pipes should be inspected as deck level for corrosion and pitting, especially at locations where the pipes were welded to flanges, and any cracking at the welds may have occurred. Remove anti-vandalism sleeves and boots at deck level to inspect cable alignment and cable dampers, at eight (8) locations.

E. Cable Force Measurement

The forces in all 48 cables shall be measured. Cable force measurements shall be made using lift-off, vibration method, or an alternate proposed by the Consultant. Measurements shall provide a minimum accuracy of 2%. Force measurements must incorporate the combined section properties of the cable system, bending stiffness, and sag/extensibility and intrinsic damping. The measured forces shall be compared to the design forces for analysis to verify that the load distribution of the cable array has not deviated significantly from the as-built condition, based on as-built information contained in the bridge maintenance manual.

F. Strand Removal

The structure was design with internal redundancy to permit one reference strand to be periodically removed from each stay for inspection. Two (2) strands from cables selected based on inspection and nondestructive testing shall be removed for this in-depth inspection. The strands should be removed from the two of the four (2 of 4) locations referenced in the Manual for Inspection and Maintenance and inspected for any signs of corrosion or damage to the strand, unless inspection and non-destructive testing results of the anchorages/stay guide pipes requires different strand locations to be tested. Laboratory tests of representative strand lengths shall be performed to evaluate strength, elongation, elastic modulus and remaining fatigue endurance of the strand main tension element. All cables have been designed with the assumption that one strand will be removed in the future, and therefore the reference strand need not be replaced. Any noted deficiencies in the stay cable corrosion protection system must be identified immediately, as the stay cable system is a key component of the bridge main load carrying system.

G. Ultrasonic Testing

Ultrasonic testing shall be performed on eight (8) selected lower and upper anchorages to verify the integrity of the strands in the cable anchorages. Locations shall be selected based on analysis of cable force measurements and inspection of strand tails and wedge plates exposed after removal of anchorage caps.

H. Cantilevered Sidewalk Cracking

Provide inspection and evaluation of concrete cracking in the mild-steel reinforced cantilevered concrete sidewalk. Original cantilevered concrete sidewalk was designed to carry a Reach All Bridge Inspection Vehicle and the current condition of the bridge should be evaluated to verify that the sidewalk can still hold this vehicle. Evaluate cause and significance of concrete cracking, recommend and compare different methods for repair, if needed.

I. Concrete Overlay

Provide inspection and evaluation of cracking in the concrete overlay between sidewalks on the cable-stayed portions of the bridge, conduct a delamination survey and record location and extent of delaminations. Recommend and compare different methods for repair, if needed.

J. Concrete Slab Cracking (Top and Underside)

Provide inspection and evaluation of cracking in the sidewalk area adjacent to bottom cable stay connections and underside of biaxially post-tensioned flat slabs. Inspect deck slab, edge girders, and end beams for evidence of cracking, spalling, or corrosion. Recommend and compare different methods of repair, if needed.

K. Survey of Bridge

Perform detailed geometric survey of the bridge deck, pylons, and piers by a Registered Land Surveyor in the State of Wisconsin prior to completing the other elements of the in-depth inspection in order to:

1. Compare survey results with 2002 baseline survey.
2. Monitor any settlement of the pylons and piers.
3. Measure any longitudinal and transverse displacements of the pylons.
4. Monitor the profile grade of the roadway.
5. Measure expansion joint openings.
6. Measure elastomeric bearing deflections.

L. Inspection Report

The Consultant shall prepare an inspection report that identifies deficiencies observed during field inspection, incorporate the results of any materials testing, present the results

of any engineering analyses and identifies any substandard features. Conceptual recommendations for repairs shall be included and associated costs shall be identified. Anticipated future rates of deterioration before and after recommended repairs shall be estimated.

The consultant must supply all necessary aerial lifts, or similar access vehicles for other portions of the work. Due to the relatively low height of the superstructure it is recommended that ground based inspection equipment be used for inspection of the underside of the superstructure, piers, pylons, and abutments.

The consultant must supply traffic control for any work which encroaches on traffic on the 6th Street Viaduct, West St. Paul Avenue, or West Mount Vernon Avenue.

The City of Milwaukee will reimburse the consultant for costs associated with obtaining railroad flagmen. The City may request copies of the invoices received from the railroad. The consultant is responsible for advanced coordination with the City of Milwaukee, Amtrak and Canadian Pacific Railway for all work near the railroad right-of-way. Contact Jim Krieger of Canadian Pacific Railway at (612) 904-5594, and Rick Tessman of Canadian Pacific Railway at (414) 389-3765. Removal of a “reference” strand as required may or may not violate railroad clearances. Prior to any stay cable jacking or reference strand removal operations, it is imperative that vertical and horizontal clearances to Amtrak and CP Rail facilities be verified based upon proposed jacking and inspection equipment. The consultant must ensure smooth continuous operation of the inspection during the work.

3. Consultant Qualifications

Experience in the inspection of cable-stayed bridges, and cable-stayed strands:

1. Team Leader, a professional engineer with NBIS Bridge Inspection certification including fracture critical bridges, and direct experience in evaluating cable stayed bridges and cables, to direct all project phases, and be on site during the inspection.
2. One or more inspectors with cable-stayed bridge design or inspection experience.
3. Availability of testing laboratory resources qualified to evaluate metallurgical, corrosion engineering, fatigue endurance and mechanical properties of bridge stay cable materials.

4. Final Report

The findings of this investigation shall be assembled in report form, which shall be signed and stamped by a Professional Engineer registered in the state of Wisconsin. Two paper copies and one electronic copy of the report shall be submitted to the City of Milwaukee. Each report shall contain color photographs.

Each report shall also contain the bridge name, city identification number, state identification number, feature on, feature under, and the date of inspection.

In addition, the consultant shall submit a copy of all field notes of the inspection and survey crews.

5. Prosecution and Progress

Field work under this contract must be completed no later than November 16, 2012, and a final report must be received no later than December 21, 2012.

The consultant, or through the use of sub-consultants, is expected to furnish all manpower, equipment, material, supplies, and other resources required to complete the work within the term of the contract. The consultant will obtain approval of the City of Milwaukee prior to subcontracting any work after the contract has been awarded.

6. Basis of Payment

For work under this contract, the basis of payment will be a guaranteed maximum price contract. Partial payments may be requested monthly in accordance with the General Specifications of the City of Milwaukee Department of Public Works dated January 31, 1992 and all subsequent addenda.

7. Project Meetings

The City of Milwaukee reserves the right to schedule progress meetings during the inspection which the Consultant and any subcontractor working on the inspection must attend. It is anticipated that one meeting will be required at the start of the contract work, and one meeting after submission of the final report. Other meetings may be scheduled as needed.

8. Preparing and Submitting Proposal

A. General

All proposals shall comply with the following instructions. These instructions are intended to ensure that submissions contain the information and documentation required by the City of Milwaukee, and submissions have a degree of uniformity in the presentation of material, which will facilitate evaluation by the City's Evaluation and Selection Committee.

The evaluation and selection of a consultant and the contract will be based on the information contained in the proposals plus references. Failure to respond to each of the requirements in this RFP may be basis for rejecting a response.

Elaborate submittals beyond that sufficient to present a complete and effective proposal, are not necessary nor are desired. Emphasis should be on completeness and clarity of content.

All material submitted pursuant to the RFP shall become the property of the City of Milwaukee. All documents pertaining to the RFP shall be kept confidential during the selection process. No information about any proposals shall be released until the selection process is complete. The successful proposal may become public through an open records request after the selection has been made.

The contents of this RFP, including any changes/additions, and the proposal will become contractual obligations if a contract ensues. Changes to the proposal will not be allowed without prior written consent. Failure to adhere to these obligations may result in cancellation of a contract offer.

The selected consultant will be required to assume responsibility for all services offered in their proposal whether or not they perform them directly or through a sub-consultant.

The City is not liable for any costs incurred by the prospective consultants in response to this RFP, or any costs incurred in connection with any discussions, correspondence or attendance at interviews or negotiation sessions. Total liability of the City is limited to the terms and conditions of any contract resulting from this RFP.

B. Clarification and/or Revisions to the Specifications and Requirements

Any questions concerning this RFP must be submitted in writing no later than 4:00PM CST, May 31, 2012 to:

Mr. Craig Liberto, P.E.
Structural Design Manager
City of Milwaukee
Infrastructure Services Division
841 North Broadway, Room 907
Milwaukee, WI 53202
Fax: (414) 286-0475
Email: craig.liberto@milwaukee.gov

If a consultant discovers any significant ambiguity, error, conflict, discrepancy, omissions, or other deficiency in the RFP, the consultant should immediately notify the above named individual of such error and request modification or clarification of this RFP Document.

In the event that it becomes necessary to provide additional clarifying data or information, or to revise any part of this RFP, revisions/amendments and or addendums will be provided to all recipients of this initial RFP.

C. Proposal Format and Content

The proposal should be typed and submitted on 8.5 x 11-inch paper bound securely. Proposals should be organized and presented in the order and by the number assigned in

this RFP. Proposals must contain the following information arranged in the following order. Each heading should be separated by tabs or otherwise clearly marked.

1. Cover Letter

- a. The cover letter or executive summary should state briefly the key points of the firm's proposal.

2. Table of Contents

3. Introduction/Identification

- a. Name and addresses of all firms working on the job and where they are incorporated.
- b. Where the firms are licensed to operate
- c. Contact information of individual authorized to negotiate a contract for the firm or team.

4. Project Approach

- a. A general description of the firms approach to completing each of the objectives / tasks outlined in the Scope of Work.
- b. The consultant should provide information for addressing each of the tasks identified in the Scope of Work. Include a discussion of any substantive or innovative ideas that could be used on this project. The consultant is encouraged to present suggestions that they believe will simplify the project and result in lower costs of the work

5. Firm/Team Background, Qualifications, and Experience

- a. General description of the firm/team's background, specialties, etc.
- b. Approximate percentage and responsibilities for each firm on the team, if more than one firm is identified on the project.
- c. Identification of the firm/teams' recent experience on similar projects.

6. Team Staff – Experience and Qualifications

- a. Organization chart of key team members with a brief description of the project organization and management plan, including the respective functions of all team members. If subcontracts will be required, a detailed description of functions should be provided.
- b. The name of the proposed project manager, and an outline of the project staffing plan indicating the level of personnel to be involved in the project and the role that each member is anticipated to spend on the project. The outline of the project staffing plan should also include every party of a subcontractor arrangement. The

project manager shall have at least 3-years of actual experience in administering projects of this scope.

- c. Resumes and relevant experience of key team members.

7. Schedule

- a. The program schedule should include a proposed ordering of the tasks, length of time to complete each task, and proposed completion date for each task. The schedule should be provided in Gantt chart format.

8. Summary of Manpower Requirements

- a. Provide a summary of manpower requirements with an hourly breakdown of the tasks set forth in the Scope of Work by each team member. Provide an initial estimated level of effort in man-hours by employee classification as well as rates of pay, overhead, profit, and a total guaranteed Maximum Price. Further negotiations with the consultant selected to complete this project will establish the final level of effort and compensation for it.

D. Equal Employment Opportunity

The consultant shall abide by all existing federal, state, and local laws. On professional service contracts, local ordinances require an 18% participation rate in the Minority, Woman, and Small Business Enterprise Program (M/W/SBE). However, due to the specialized nature of this RFP scope, the goal participation is 6% of the contract using SBE firms registered with the City of Milwaukee Office of Small Business Development (OSBD). For a complete listing of the City of Milwaukee certified M/W/SBE firms, see the OSBD website at Milwaukee.gov/osbd. If there are any questions regarding M/W/SBE certified firms, contact OSBD at (414) 286-5553. The consultant is encouraged to seek subconsultants, who may be able to perform work such as traffic control, surveying, or providing inspection equipment to participate in the MWSBE goal.

E. Submitting the Proposal

Consultants must submit an original and four copies (five total) of all materials required for acceptance of their proposal by 4:00PM CDT on June 14, 2012, to:

Mr. Jeffrey S. Polenske, P.E.
City Engineer
City of Milwaukee
Infrastructure Services Division
841 North Broadway, Room 701
Milwaukee, WI 53202

The proposal must conform to the format and content prescribed in this RFP. The City reserves the right to reject any or all proposals that fail to adhere to this format and content.

Proposals must be received in the above office by the specified time stated above. All submittals must be time-stamped in the City Engineers office by the stated time.

Proposals received after the deadline will be returned to the sender unopened.

9. Proposal Selection and Award Process

A. Preliminary Evaluation

1. The proposals will first be reviewed to determine if the format requirements are met. Failure to meet these requirements may result in the proposal being rejected.
2. The City of Milwaukee reserves the right to accept or reject any or all proposals and to waive irregularities and technicalities, which in its opinion would best serve the interests of the City. The City of Milwaukee reserves the right to make investigations and inquiries, as it deems necessary to determine the ability and qualifications of any submitting firm or team to perform the work or services requested.

B. Proposal Ranking

1. Consultant selection will be based on qualifications, experience, and the proposed work scope without emphasis on any one factor to the exclusion of others.
2. The proposals will be ranked and the selection of the most qualified consultant will be made based on the selection criteria.

C. Selection Criteria

Selection criteria used to evaluate the proposal and select consultants will include, but not be limited to, the following:

1. Adherence to the intent of the RFP
2. Team Qualifications
3. Team's general experience with Cable Stayed Bridge Inspections
4. Team's specific experience with individual services included in this RFP
5. Staff Qualifications
6. Key team members' overall experience and qualifications
7. Key team members' availability
8. Project approach
9. Ability to complete the project on schedule
10. Estimated level of effort
11. Local presence to coordinate and administer the project

12. Minority, Women, and Small Business Participation

10. Additional Information

A. Project Administration

The City of Milwaukee Infrastructure Services Division is the lead administrative agency for this project. The consultant will report directly to the City Engineer or his designee.

B. Type of Contract

The contract resulting from this RFP will be a Guaranteed Maximum Price. Compensation for extra work will be negotiated on the basis of detailed man hour costs.

C. Contract Payment Schedule

Payment for any contract entered into as a result of this RFP will be made monthly upon receipt of the consultant's billing statement and progress report. Monthly payment will be 95 percent of the billing. The 5 percent retainer will be paid upon receipt of final report, and final acceptance of the work by the City.

D. Project Timetable

It is expected that that the selected consultant will perform the in-depth bridge inspection and will have all field work completed no later than November 16, 2012, and a final report submitted by December 21, 2012.

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APPENDIX A – Location Map

APPENDIX B – Manual for Inspection and Maintenance – Sixth Street Viaduct Cable-Stayed Bridge and Approaches

APPENDIX C – 2011 Routine Bridge Inspection Report

APPENDIX D – Cable Stay Assemblies Data

APPENDIX E – 2002 Survey Control Data

APPENDIX F – Sample Professional Services Contract

APPENDIX G – Minority/Women/Small Business Enterprise (MWSBE) Provisions

APPENDIX H – B-40-413A Record Drawings

APPENDIX I – B-40-414C Record Drawings